

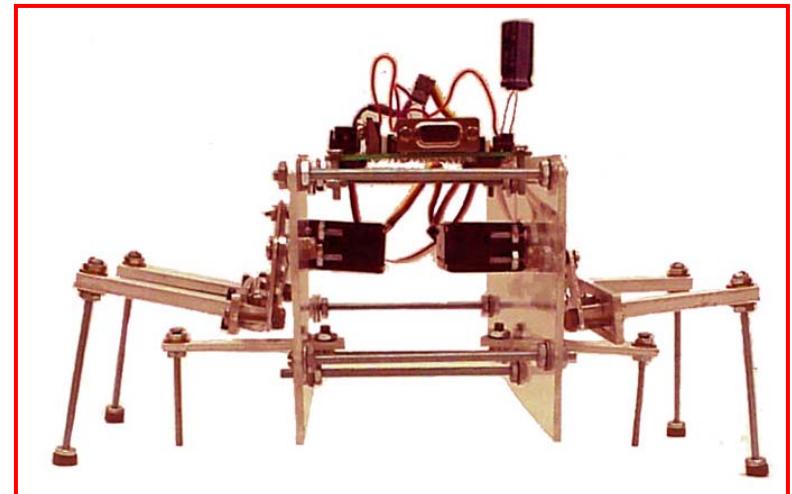
Department of Mechanical Engineering

The Mechanical Engineering Program

Presentation
by
Professor M. V. Otugen



NASA Dryden Flight Research Center Photo Collection
<http://www.dfrc.nasa.gov/gallery/photo/index.html>
NASA Photo: ED01-0230-4 Date: August 13, 2001 Photo by: Carla Thomas
The Helios Prototype aircraft at approximately 10,000 feet flying above cloud cover northwest of Kauai, Hawaii.



Agenda

- **Overview**
 - What is Mechanical Engineering ?**
 - At Polytechnic**
What is so special about ME program at Poly?
 - Details of the ME Curriculum**
Aerospace Engineering Concentration
 - What will you be when you graduate**
Poly Alumni
Prospective Employers

Top Ten ME Achievements in the 20th Century

1. The Automobile
2. The Apollo Program
3. Power Generation
4. Agricultural Mechanization
5. The Airplane
6. Integrated Circuit Mass Production
7. Air-conditioning and refrigeration
8. Computer-aided engineering technology
9. Bioengineering
10. Codes and standards

Source: Wicket, *An Introduction to Mechanical Engineering*, 2004

Mechanical Engineering

- *Undergraduate degrees offered:*
 - *Bachelor of Science*
 - *Mechanical Engineering*
 - *Mechanical Engineering with Aerospace Engineering concentration*
- *BS Degree is ABET accredited*



Mechanical Engineering (continued)

- *The heart of any department is its professors*
 - *9 full-time faculty members*
 - *Most carrying out cutting-edge research and making discoveries*
 - *Strong interaction with students*
 - *Faculty actively engaged in undergraduate students education; we teach the courses*
 - *Has received numerous University and National Awards*



Mechanical Engineering *(continued)*

- *Our students:*
 - *Are highly motivated*
 - *Have a good sense of where they want to go*
 - *Most work during the academic year*
 - *Vast majority has substantial engineering experience to graduation*



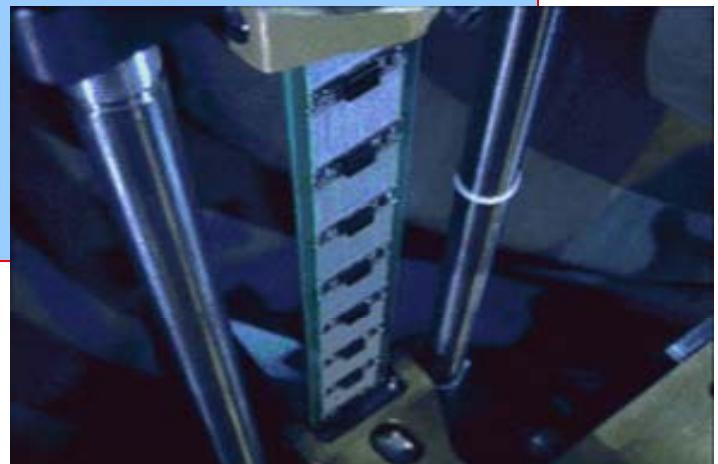
Mechanical Engineering (continued)

- *BS in Mechanical Engineering*
 - *A new curriculum with 128 credits*
 - *8 semesters; 4 year program*
 - *It is a professional degree*
 - *Hands-on laboratory, and computer applications*
 - *Focus on communication skills
(we teach you to say what you mean)*



Mechanical Engineering *(continued)*

- A program that emphasizes:
 - modern computing tools and equipment
 - engineering design
 - engineering practice
 - projects, from the sophomore year up...
 - national student competitions
 - interests, resources, and faculty knowledge
 - competitive annual design awards



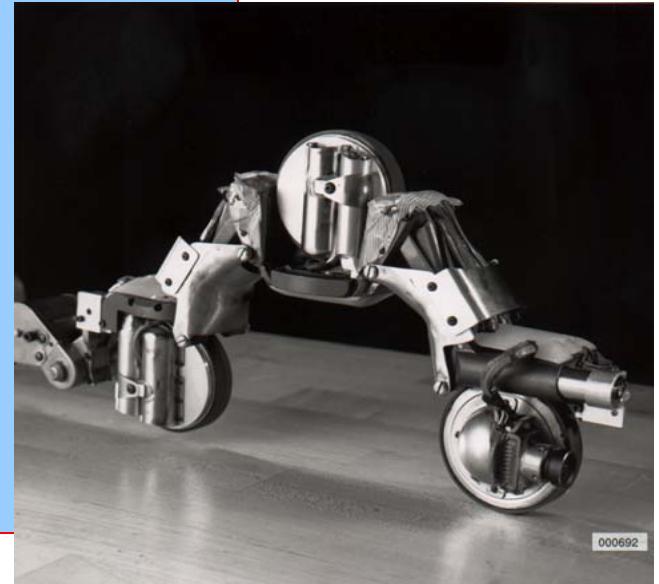
Mechanical Engineering *(continued)*

- *Computers in our program (we do make it fun!)*
 - *They are an integral part of Mechanical Engineering*
 - *we design them, and*
 - *we use them for:*
 - *computer aided analysis*
 - *computer aided design*
 - *computer controlled laboratories*
 - *computer aided instruction*



Mechanical Engineering (continued)

- *Senior (capstone) design course*
 - *Finally you get to use your knowledge!*
 - *Integrates all the student has learned*
 - *Two semesters, team-based experience*
 - *“Product Realization Process”*
 - *Integrates analytical, computer simulation and experimental knowledge*



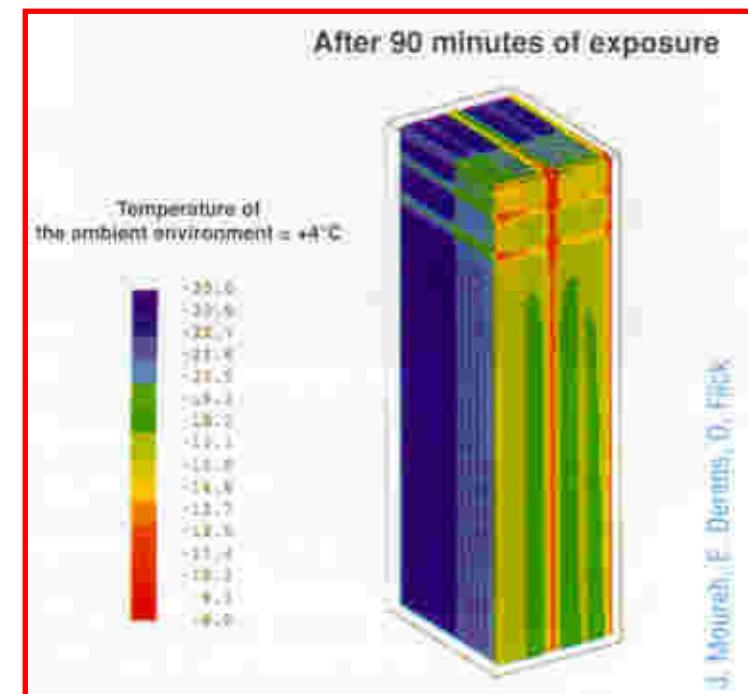
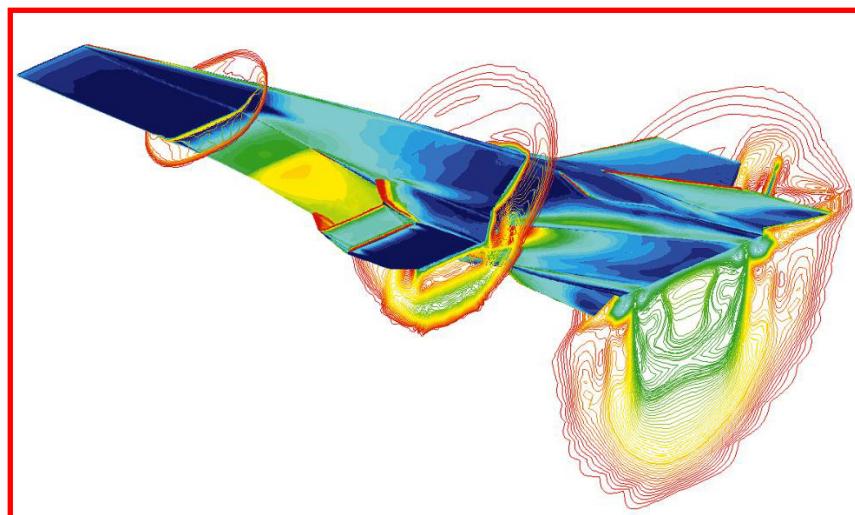
Mechanical Engineering (continued)

- *Three Stems in ME:*
 - *Thermal & Flow Sciences*
 - *Mechanical Systems / Structures*
 - *Control*
- *Leading to:*
 - *Engineering Design*



Mechanical Engineering (continued)

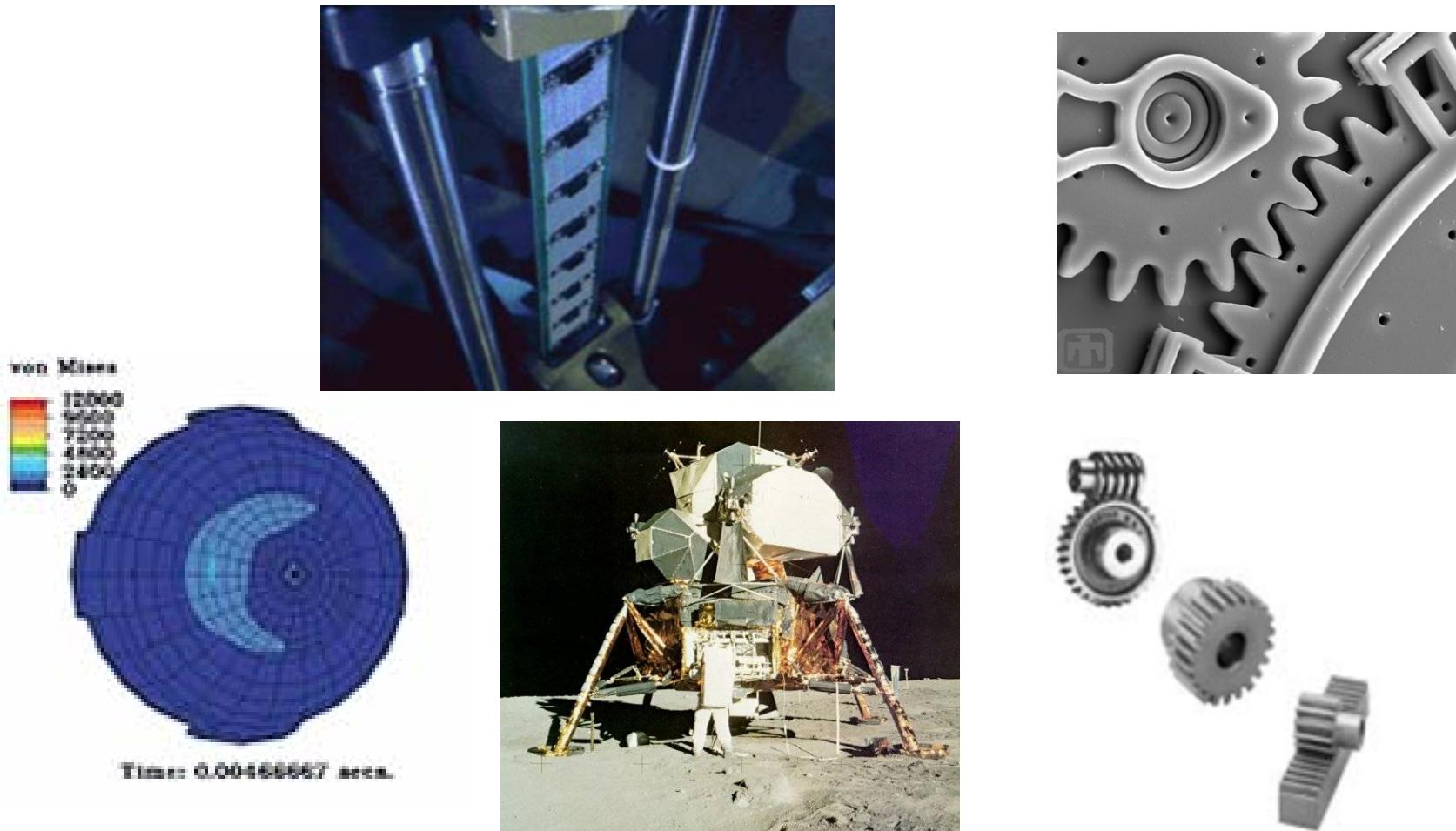
Thermal & Flow Sciences



J. Moura, F. Dentim, D. Flick

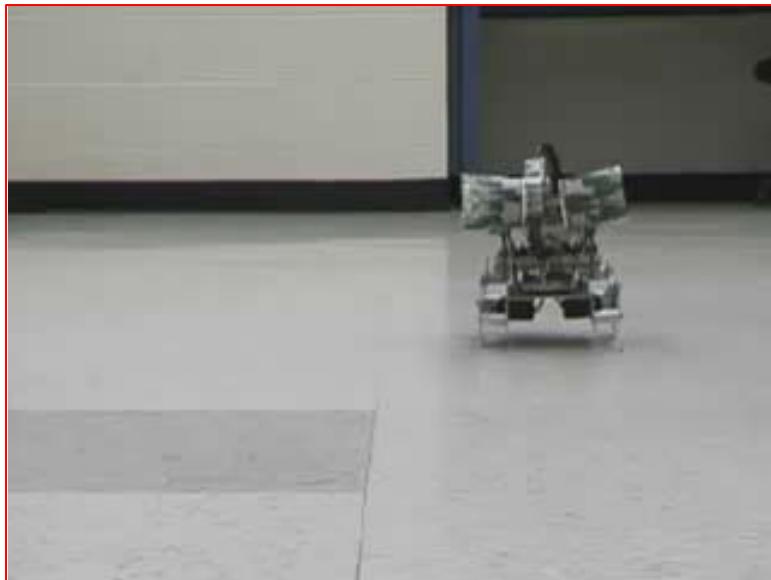
Mechanical Engineering (continued)

Mechanical Systems / Structures



Mechanical Engineering (continued)

Control



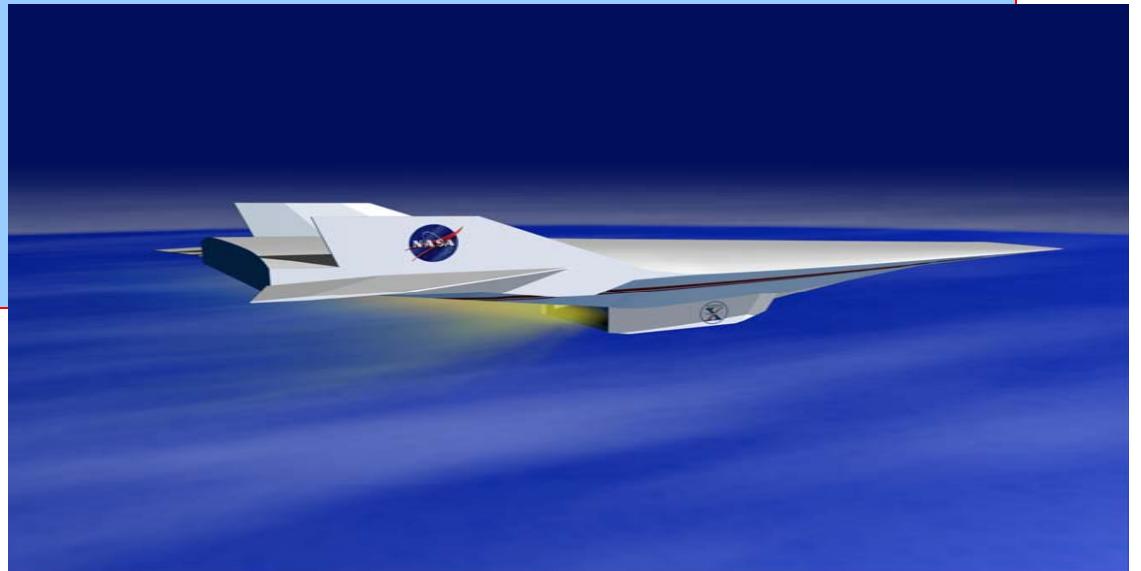
Mechanical Engineering *(continued)*

Aerospace Engineering Concentration



Aerospace Engineering Concentration

- *Popular among our students*
- *Provides the basics of Aerospace Engineering*
- *Enables the graduates to get jobs in this industry*
- *Many of our past graduates chose aerospace industry*



Aerospace Engineering Concentration

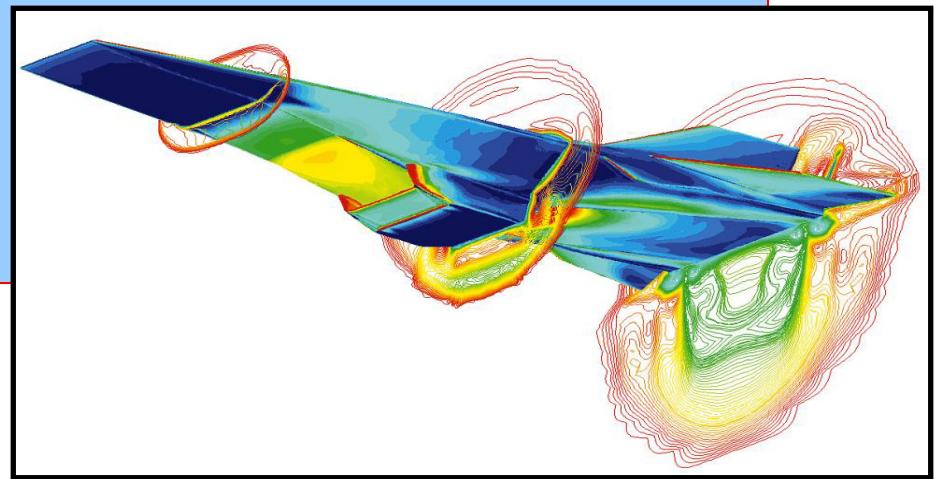
- *How does it work?*

- Take 4 courses (12 credits) of your electives in the aerospace specialization courses in:

Aerodynamics

Air & Space Propulsion

Aircraft Flight Mechanics



Question: *Why choose Mechanical Engineering at Poly?*

- *We'll know you by your first name*
- *You'll know all your classmates' names*
- *You'll get personal attention*
- *You'll get the best education there is*
- *Your degree will have a great value*
- *Doors will open to you for great things!*

What will you be as a Poly Alumnus?

- Professionals working in: industry, academia, government
- ... rising to the top of your career becoming managers, vice presidents, presidents, CEOs
- Wall street trader or doctor or lawyer or
- ...owner of your companies
- But first and foremost, you will be a part of the Poly family and
- a provider of continuous input to us for our continued excellence

Who are some of our employers?

EXXON,
ConEd,
Keyspan,
IBM,
Sun Systems,
Symbol Technologies,
Lucent
Computer
Associates,
AIL

General Electric, United
Technologies,
Ford Motor Company,
GM,
Photocircuits,
Boeing,
General Dynamics,
NASA,
Air Force,
Navy Research &
Development